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ABSTRACT

This paper reviews recent changes in Japanese telecommunications policy, assesses those changes, and evaluates the differences in the policy making and policy implementation processes in Japan and the United States. From this analysis, five lessons are derived for U.S. telecommunications policy: (1) the telecommunications sector is strategically important to economic development and international competitiveness, and thereby deserves legislative, not merely regulatory or judicial, attention; (2) telecommunications policy should be developed and implemented at the national--not the state--level; (3) telecommunications policy should balance short-term consumer benefits against long-term national interests in technological advancement in telecommunications equipment, networks, and services; (4) policy jurisdictional disputes should be minimized by a clear grant of primary responsibility to a single agency; and (5) policymakers should seek the advantages of competition and integrated systems by removing restrictions on Bell operating companies while promoting open access, technical interconnection, and compatibility, and prohibiting discrimination against competitive suppliers. The text is supplemented by four tables and a 51-item bibliography is provided. (Author/EW)

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TELECOMMUNCATIONS POLICY IN JAPAN:

LESSONS FOR THE U.S.

by

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"He knows not England who only England knows."

- Rudyard Kipling

A. INTRODUCTION: COMPARATIVE TELECOMMUNICATIONS POLICY ANALYSIS

As public regulation of private enterprises was historically the predominant American institution for providing economic infrastructure services, so too was the "deregulation" of those industries in the 1970's and early 1980's. While the U.S. undertook major legislative and regulatory reforms in securities, airlines, trucking, railroads, financial depositories and cable television, most other developed market economies maintained nationalized monopolies (or heavily regulated quasi-private firms). Whether other nations had much to learn from the U.S. experience may be open to question,[1] but there is some evidence to suggest that recent movements in other nations toward more liberal, market-oriented industry policies is due in part to the success of such policies here.

In telecommunications, by contrast, the forces of change are distinctly transnational. While the U.S. may be fairly characterized as among the first to liberalize policies toward telecommunications services and equipment, it is not acting in isolation, as it generally was in transportation deregulation. Both changes in public policies and the effects of those policies are rapidly transmitted across national boundaries and political jurisdictions, with three potential transmission mechanisms at work:

First, policies can be directly imitated precisely because they appear to have been successful in their initial or subsequent implementation. Although differences in culture, social and political institutions and economic environments make copying a hazardous enterprise, partial imitation, with adaptations and adjustments to fit local circumstances, has long been and will no doubt continue to be a powerful form of influence. An early

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[1] The potential for transfer varies markedly from industry to industry, depending on the degree of similarity in industry organization and economic conditions. The trucking industry is structurally similar in most developed economies, while the railroad industry is not (ranging from national monopoly in Europe, public-private duopoly in Canada, public/private multi-firm in Japan to private multi-firm structure in the U.S.)

example of imitation in regulatory policy is the Interstate Commerce Act of 1937, which bears a striking resemblance to the British Railway Act of 1837. A more recent example is the proposed adoption of "price cap" regulation by the Federal Communications Commission, based upon the model adopted by the Office of Telecommunications in Great Britain.[2]

Markets are a second mechanism for transmitting changes in public policy, including direct competition across policy jurisdictions, as well as upstream and downstream market competition. Market "spillover" effects occur when the geographic scope of the market exceeds jurisdictional boundaries. If policies create differential incentives (e.g., lower prices or fewer restrictions on the (re)use of services), customers will buy from the supplier governed by the more favorable policies. In Europe, for example, many customers route transatlantic calls via a private line/ PBX connection in London, to take advantage of British Telecom's lower rates (compared to continental PTT rates). Similarly, many Europeans have purchased direct broadcast satellite receivers to avoid the programming restrictions of their national governments.

Upstream markets transmit public policy consequences when the demand for factor inputs create competitive advantages or disadvantages among suppliers. The AT&T divestiture (i.e., the vertical disintegration of Western Electric from the Bell operating companies and the prohibition on manufacturing by the BOC's), for example, gives the BOC's significant incentives to turn to foreign suppliers.[3] As foreign firms enter the U.S. market, there are trade policy pressures to liberalize their own respective domestic markets to U.S. suppliers.

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[2] The proposed adoption of price caps in the U.S. illustrates the potential hazard of copying without taking account of institutional differences. Since the British government stills owns a major share of British Telecom, British ratepayers share in its profits. In the U.S. profits (including possibly higher profits under price caps) accrue to shareholders of AT&T. This is not to suggest that a price cap approach to rate regulation is not superior to traditional rate of return regulations; it may, however, explain the difference in political reactions to price caps between the U.S. and Britain.

[3] For an extended discussion of this issue, see Harris [1987].

Downstream markets are an increasingly important mechanism for transmitting policy effects across jurisdictions. Policy differences can substantially affect competitive advantage and hence the locational decisions of users. These downstream effects are especially important in industries that are intensive users of the input; financial services firms, for example, are highly dependent on advanced communications and information services, as are the data processing divisions of large multi-national corporations. Attempts by regulators to tax large users in order to cross-subsidize politically favored users will risk location of new facilities (or relocation of existing facilities) in order to avoid the tax. Likewise, if policies restrict the implementation of new services, users will locate where those services are available.

Transnational organizations and social networks are a third mechanism for transmitting public policies, as human interaction affects the way policymakers define the problem and the "opportunity set" of potential solutions. Moreover, transnational enterprises, acting in international arena or in national political contexts, are vitally important mechanisms for affecting changes in public policies. International standards-setting bodies are an especially noteworthy class of organizations that transmit policy changes, since the public policies of one country may give it a competitive advantage in the standard-setting process. For example, as the first nation to introduce Integrated Services Digital Network as a commercial service,[4] Japan may have gained an advantaged position in influencing ISDN standards. If so, this would in turn give Japanese telecommunication equipment manufacturers a competitive advantage in world markets.

In any given policy arena, one or more of these transmission mechanisms may by at work; typically each of them is working interdependently with the others. Thus, observations about the market effects of a policy change in one country may constrain policymakers from pursuing existing policy in another. In searching for an alternative, the

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[4] Japan uses the term INS (Information Network Services), rather than ISDN. NTT began commercial INS on April 18, 1988.

thinking of the second set of policymakers may be influenced by the first set in international forums, leading them to imitate their policy. **One of the most important consequences of the continuing technological advance of communications and information services is the general increase in the "transmission rates" of each of these mechanisms, thereby raising the benefits of successful public policies, but also the costs of deficient policies.**

The customary view among U.S. policymakers and students of public policy is that other nations have copied - or should copy U.S. style deregulation. And while policymakers in other countries do observe the U.S. experience and have definitely transferred some lessons from the U.S., there is also a good deal of resentment about the "high-handedness" with which U.S. policymakers sometimes attempt to export U.S. policies abroad.[5] More to the point, this "invented here" mentality too often prevents us from learning lessons from other nations, who may well have adopted policies that are, at least in some respects, superior to our own. Even in instances where we moved earlier than other nations, that does not necessarily mean we remain the leader in terms of best current practice. Indeed, there may be substantial "second mover" advantages in public policymaking, as "imitators" have an opportunity to observe the effects of the initial policy and make incremental improvements.

In any case, the basic thesis of this paper is that the U.S. has a great deal to learn from Japanese telecommunications policy, as well as their policymaking and implementation process.[6] That thesis is based on the premise that the Japanese telecommunications policy regime, though hardly perfect, is better suited to a technologically dynamic, globally competitive industry. What Japanese policy has, and the

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[5] In my discussions with public servants and enterprise managers on recent fields research trips to Britain, France and Japan, there were numerous references to the U.S. practice of "preaching" and "talking down," and the expressed regret that U.S. policymakers seem to believe they have little or nothing to learn from other countries.

[6] As well as other nations, principally Britain and France.

U.S. sorely lacks, is a strategic sense of purpose and direction; a strong public consensus regarding that purpose; a coherent, consistent framework for achieving that purpose; and a consensual process for resolving conflicts and removing obstacles to that achievement.

In addition to the specific differences in the elements of telecommunications policy, there are two distinguishing differences between U.S. and Japanese approaches to telecommunications policy, one intellectual, the other institutional. At the intellectual level, U.S. policy is guided by an ideological commitment to competition - or at least the appearance of competition - as an end unto itself. Virtually every major policy decision has been premised on the notion that more competition is better than less. While Japan has also opened its telecommunications markets to new entrants, competition is not the end of its policy, but a means. Hence the decided difference between a disintegrated AT&T, with myriad line-of-business restrictions on the separated parts, and an integrated NTT with virtually no line-of-business restrictions.[7]

At the institutional level, U.S. policymaking is characterized by continuous conflicts among competing jurisdictions, with constant venue-shopping by parties in various alternative - but always adversarial - settings. While the FCC has played an increasingly central role in U.S. telecommunications policy, critically important decisions have been made by Courts of Appeals, by the District Court in the antitrust consent decree and its enforcement, and by the 50 state regulatory agencies. Jurisdictional disputes are increasingly common and contentious. Moreover, both Federal and state regulators operate under the threat of legislative action, though seldom with the benefit of affirmative legislative guidance.[8]

In Japan, all major policy changes have been effectuated legislatively, at the national level (there being no prefectural involvement in telecommunications regulation).

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[7] That is, integrated across local, long-distance and enhanced services.

[8] With notable exceptions in the several states where legislatures have passed comprehensive new telecommunications policy legislation.

While the jurisdictional dispute between MITI and MPT is by now notorious,[9] the responsibility for implementation of the new telecommunications policy lies mainly with MPT, with MITI's role limited to standards setting and R&D promotion. At MPT, the process of regulation (e.g., rate setting) and conflict resolution (e.g., providing competitors with access to NTT's technical information about network specifications) is far less adversarial and procedurally cumbersome than in the U.S.

The succeeding sections of this paper will attempt to elaborate and explain these differences. Section B provides a brief history of Japanese telecommunications policy and industry organization, as a backdrop to the period of major policy changes in the mid-1980's. The nature of and motivations for those policy changes and their effects on industry organization will be examined in Section C. In Section D, we offer some concluding observations, mainly in the form of lessons the U.S. can learn from the Japanese approach. While there have been important developments in Japanese policy toward international telecommunications services, this paper will only address domestic telecommunications.

B. DEVELOPMENT OF JAPANESE TELECOMMUNICATIONS, 1952-84

The modern era of Japanese telecommunications began in 1952, when Nippon Telegraph and Telephone Corporation (NTT) was established as a public corporation to be the monopoly provider of domestic telecommunications services and Kokusai Denshin Denwa Company Ltd. (KDD) was created as a public corporation to provide international telecommunications services.[10] Most of the Ministry of Communications was transferred to the new NTT, except for the regulatory functions, which were transferred to the Ministry of Posts and Telecommunications (MPT). The chief mission of NTT was to rebuild the Japanese telecommunications network (which had been almost completely destroyed by

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[9] Johnson [1988] refers to the jurisdictional dispute between the Ministry of International Trade and Industry and the Ministry of Posts and Telecommunications as the "Telecom Wars."

[10] For extensive histories of Japanese telecommunications in the post-war era, see Bruce et al, 1986 (Chapter 5); Imai, 1986; Ito, 1986; Okimoto, 1986A; Tomita, 1984 and Vogel, 1985 (Chapter 5).

bombing during World War II). At the time, only 2% of Japanese residences had telephone service, compared with more than 50% of residences in the U.S. The goal of universal service had nearly been accomplished by 1986 with more than 80% of households subscribing to telephone service (versus 95% in the U.S.)[11]

Structurally, NTT was modelled after AT&T, as the integrated provider of local and inter-exchange telephone services.[12] There was one critical difference, however, in that NTT was not vertically integrated into equipment manufacturing. Although many Japanese looked to the U.S. as a model for many post-war institutions (to say nothing of the influence of the Occupation Forces), the government decided against having a monopoly supplier in favor of the "NTT family." This was a crucial feature of Japanese telecommunications, in contradistinction to virtually all other developed nations, which relied on a monopoly (or at least heavily favored national supplier) for telecommunications equipment.

In establishing the NTT family, the government attempted to gain the advantages of both vertical integration and competition. By working closely with family members (NEC, Hitachi, Fujitsu and Oki) throughout the research, design, development and implementation phases, NTT captured the "learning by doing together" advantages of integration. By using procurement contracts as incentives, NTT stimulated innovation and efficiency among the family members (though NEC was said to be the "favorite son").

Shortly after NTT and KDD were established, Japan adopted the Wire Telecommunications Law of 1953 and the Public Telecommunications Law of 1953, which served as the basis of Japanese policy until 1984 (although there have been substantial amendments to them). The basic purpose of these laws was to give NTT and KDD virtually absolute control over the design, construction, operation and maintenance of the

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[11] MPT White Paper, 1987, page 19.

[12] A very small share of telephone service was provided by rural cooperatives in remote areas, sometimes by radio telephone technology.

public telecommunications infrastructure. There was only one major departure from monopoly control: the law permitted private construction of wire facilities, so long as they were not used for third-party communications,[13] and MPT approval was required if such facilities would in any way "affected" the public network.[14] The laws prohibited the shared use of leased lines from NTT and the interconnection of privately operated facilities to the network.[15]

Under growing pressure from Japanese businesses, MPT proposed and the Diet passed various amendments liberalizing telecom policy in 1971. A provision allowing interconnection of PBX's to the NTT network eliminated NTT's monopoly over terminal equipment, with the exception of the "first phone," over which they retained monopoly control.[16] NTT was authorized to provide data transmission services over leased lines ("specified circuits") or public circuits. Shared use of a specified circuit was permitted when the users had a "considerable business relationship." As we will see in the succeeding section, this was an important policy provision, given the high degree of intercorporate ownership and long-term business arrangements in Japanese industry. Private circuits or facilities could not be used to provide third-party switched services and simple resale of circuit capacity was prohibited.

While the 1971 amendments (Article 106) authorized interconnection of privately owned wires or private branch exchanges to the NTT network (through leased circuits), there was no authorization for value-added services. Whereas NTT was authorized to

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[13] Under the Telegraph Law of 1890, until 1953 the legislative basis of Japanese telecommunications policy, all private facilities were prohibited.

[14] Because Japan is so narrow, with such a large share of the population concentrated in the Tokyo-Osaka corridor, "frequency congestion" is a serious potential problem. Private microwave networks were basically limited to Japanese National Railways (for train control), the electric utilities (for load management), the Ministry of Construction (for traffic management on national highways), and the Self-Defense Forces.

[15] Bruce et al, 1986, pages 355-56.

[16] A Japanese citizen incurs a very large payment for a first phone, which then entitles him or her to network access for life; NTT effectively has a "three-part" tariff for local phone service: a large payment on receipt of the first phone (by purchase of NTT bonds), a fixed monthly charge and a charge of 10 yen per local call.

provide data processing services to end users, third-party providers of data processing services could not transmit data over leased circuits - they were required to use public circuits for that purpose. In 1979, NTT initiated circuit switching and packet switching over its digital data network, as well as a facsimile communications network.

In 1982, the Public Telecommunications Law was again amended and an important MPT ordinance issued; these two actions significantly liberalized Japanese policy. Interconnection of private and leased circuits was authorized, with virtually none of the Article 106 restrictions. Shared use of facilities or circuit resale for basic message switching was still prohibited, unless the parties had a close business relationship. Although prior notification to MPT was required, the ordinance allowed privately-operated VAN services, so long as they linked closely affiliated groups of small or medium-sized users (with certain restrictions on the number and size of participants). Essential links between manufacturers, wholesalers and retailers were allowed.[17]

NTT retained its monopoly over basic telephone services, the first phone, telex and telegram. In stark contrast to the U.S., however, NTT was allowed to provide data processing and other enhanced information services (the 1956 antitrust consent decree prohibited AT&T from doing so). Indeed, by the early 1980's, NTT was substantially involved in the provision of large-scale value-added services such as on-line reservations systems and financial information services (e.g., interbank ATM network).

These two major bouts of liberalization, in 1971 and 1982, occurred in the context of Japan's economic ascendancy to global prominence. While Japan had relied heavily on U.S. telecommunications technology throughout this period,[18] NTT and family members had spent considerable sums on R&D and had, by 1984 achieved technological equivalence

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[17] This opening to small business VANs was responsive to MITI's expressed concern that NTT circuit reuse restrictions created a hardship for firms too small to install their own private networks or computers.

[18] The 1956 Consent Decree required Bell Labs to open license all innovations; NTT and NTT family members maintained a close working relationship with Bell Labs, including regular, lengthy visitations by their researchers to the labs, in order to expedite technology transfer and its application to the Japanese network and equipment.

(or nearly so) in telecommunications. An in-depth assessment of Japanese technology summarized its findings in these terms:

> 1. At the lowest building-block level of the telecommunications equipment market - semiconductor and opto-electronic components - Japan's R&D efforts, ranging from basic research on materials and fabrication technology to product development, are among the best in the world...
>
> 2. At the next level - the subsystems from which telecommunications networks are built - the quality of Japanese R&D is mixed. It tends to be best at the product-development end of the spectrum and weaker at the basic research end; but research in [some] areas...is excellent...
>
> 3. At the level of complete networks, Japan is not yet a substantial force internationally...but an important domestic system-development experiment (INS) could place Japan in an extremely strong market position.[19]

This technological development was achieved in large part by the NTT family of suppliers, who were typically the primary participants in large-scale, government organized R&D projects.[20] The favorable procurement policies of NTT gave family members a sizeable advantage across a range of information technologies, hence the emergence of NEC, Fujitsu, Hitachi and Oki as global competitors in components, computers and communications technologies.

Since MITI had primary responsibility for managing large-scale R&D projects and for Japan's export-driven economic policy, MITI had a direct and growing stake in telecommunications policy. Having achieved marked success in its market-conforming economic development policies, MITI was looking for new domains, especially those with a

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[19] JTECH Report, 1986, pages xi-xii.

[20] See Imai, 1986, and Okimoto, 1986.

high-growth future.[21] Furthermore, MITI had successfully initiated a national discourse about the convergence of computers and communications and the "informatization" of Japanese society. Information and information services would be the wellspring of continuing advance of the Japanese economy, with a strong commitment of government support and promotion to the development and rapid diffusion of information technologies.[22] Accordingly, MITI and industrial producers of computers and communications equipment, especially those denied preference in NTT procurement (namely Toshiba and Mitsubishi Electric), were becoming a potent force for further liberalization.[23]

As in the U.S., technological advances affected substantial changes in the relative costs of providing various telecommunications services. On the whole, the cost of long-distance transmission and value-added services declined relative to the cost of basic local service. Yet - also as in the U.S. - changes in telephone rates did not fully reflect changing relative costs. Rates were set not by MPT, but directly by the Diet, which recognized the political value of subsidizing residential phone service. Although NTT lacked the cost accounting systems to measure the degree of cross-subsidization, it was commonly believed to be quite large (if not as large as in the U.S., due to the high fee for the initial phone, very small local calling areas and mandatory local measured service).

As the demand for long-distance, data transmission and value-added services increased markedly throughout this period, the size and economic effects of the cross-subsidies from business to residence grew to proportions intolerable to Japanese industrial interests. Having achieved a substantial degree of freedom to use PBX's, private networks and value-added services in the 1982 reforms, pressure was rising among large business

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[21] MITI was by the 1980's engaged in implementing "structural adjustment" policies for declining industries, but this policy arena had a limited future.

[22] See Imai, 1986 and Vogel, 1985 (Chapter 5).

[23] JTECH Report, 1986, pages 2-10 - 2-13.

users for further liberalization and rate reductions.[24] The Federation of Economic Organizations - Keidanren - became a powerful advocate of change.

At this time, the government of Japan was facing large and growing fiscal deficits. In that context, the government investigated the need for greater efficiency in government operations, with nationalized firms as one target of their inquiry. In addition to MITI's arguments of greater dynamic efficiencies from more competition in telecommunications and business users' interest in allocative efficiency, the government - particularly the Ministry of Finance - represented a strong interest in technical efficiency. By privatizing NTT, MOF could add the revenues from the sale of NTT stock to the increased tax revenues from the privatized NTT to its coffers. In Japan's "low tax" environment, this approach was a politically sensible method for reducing the deficit.

As we will see in the succeeding section, these forces - MITI, MOF and Keidanren - combined to provide the basis for wholesale change in Japanese telecommunications policy. This left MPT in a position of defending its turf, without being seen as defending the status quo. In the national debate that ensued, MPT sought to enhance its image from that of a mere "business agency" to that of a "policy agency," with an accompanying increase in power and prestige.[25] Finally, add a fifth ingredient, if surprising by U.S. experience, NTT itself. With the appointment of Dr. Shinto as Chairman,[26] NTT became an outspoken advocate of privatization and liberalization. While there was much internal opposition (even resentment) to this position, Dr. Shinto succeeded in creating an additional affirmative force in support of the transformation of Japanese telecommunications.

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[24] In response to these pressures, NTT lowered its long distance rates four times in the 1981-84 period.

[25] See Johnson, 1988.

[26] The selection of Dr. Shinto as NTT's President and CEO is itself instructive of Japanese political-economic institutions. A former shipping industry executive with no prior telecommunications experience, Dr. Shinto was recruited by Keidanren as a candidate for the NTT post in order to promote liberalization internally and to manage the process of privatization at NTT. Needless to say, there is no U.S. institution which could so influence the choice of chief executive at a major corporation, even one controlled by the government.

C. THE NEW TELECOMMUNICATIONS POLICY REGIME

Even during the period of significant regulatory reforms in the early 1980's, a national debate emerged on the future of Japanese telecommunications. The impending AT&T divestiture drew high-level notice and the rapidly burgeoning trade surplus with the U.S. brought increasing demands from U.S. trade negotiators for more open Japanese markets. Into this discussion, two major government reports provided the substance from which the new Japanese telecommunications policy regime would ultimately be shaped.

MPT had established, in 1980, a Telecommunications Advisory Council and commissioned it to conduct a study of recent changes and their implications for the future of Japanese telecommunications. The Council's report, A Vision of Telecommunications Policy in the '80s,[27] cited rapid technological progress, more sophisticated and diverse user needs, and society's growing dependence on information as critical changes in the policy environment.[28] As policy objectives, the Report listed greater regulatory flexibility; the need to distinguish monopoly from competitive services; increased cooperation with the private sector (i.e., non-NTT operators); improved provisioning of data transmission services and the development of a new integrated network. The Council also advised that Japan should be sensitive to international policy developments and "assume a leadership role in developing policies carefully crafted to meet the demands of the information age."[29]

Meanwhile, also in 1981, the Second Ad Hoc Commission was established to study the efficiency of government agencies and operations.[30] The Commission recommended that NTT be freed from government control and be granted managerial autonomy in its structure, management and operations. While the new NTT would still be owned by the

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[27] Issued in 1981.

[28] Bruce et al, 1986, pages 364-65.

[29] ibid., page 366.

[30] The First Ad Hoc Commission, in 1961-64, had recommended drastic changes that would have freed NTT from many administrative and legal controls; its recommendations were never enacted. Ibid., page 367.

government, some of its operations (specifically, customer premises equipment and data communications) would be divested. In a second stage, NTT would be split into a trunk lines company (i.e., inter-exchange carrier) and several regional exchange companies.[31] In addition, the Report recommended allowing competition in trunk services and deregulation of other telecommunications markets.

Although the government and the press generally approved of the Commission's recommendations,[32] no legislation was introduced in the session ending May, 1983. Instead, the Cabinet called for legislation, leaving MPT the task of drafting new laws that would take account of these recommendations. MPT spent the remainder of 1983 drafting three new telecommunications laws: one to privatize NTT, one to liberalize regulation, and an omnibus bill to modify some 100 other laws affected by the structural changes. Not coincidentally, the laws give MPT a great deal of discretion, both with respect to its treatment of the privatized NTT and its jurisdiction over entry and competition. All three laws were passed by the Diet, signed into law on December 25, 1984, and took effect on April 1, 1985.

The NTT Law establishes a new corporation, to be wholly owned initially by the government (with the Ministry of Finance as the treasurer), but with up to two-thirds of its share sold off to the public. The law limits the rate at which the MOF can sell NTT shares, requires that share offerings receive prior approval by the Diet, and prohibits share ownership by foreign persons, corporations or governments.

The contents of the NTT Law reflect a settlement worked out within the Liberal Democratic Party to resolve the conflict between MPT and MOF over control of the revenues from NTT dividends and sale of NTT stock.[33] Basically, the stock sale proceeds

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[31] Because Japan has nine regional electric utilities - regulated by MITI - that was the number of regional telephone companies contemplated.

[32] The ruling Liberal Democratic Party supported the recommendations, the minority Socialist and Communist Parties did not. Bruce et al, 1986, page 368.

[33] Johnson, 1987.

would go to MOF to retire the national debt (i.e., reduce current fiscal deficits) and the dividend income to MPT to fund a new telecommunications research facility.[34] Most importantly, the Law rejects the Commission's recommendations that NTT divest CPE and data communications operations, or be required at a later date to divest its local telephone business. Hence, the Law privatized NTT, but did not restructure it.

When created on April 1, 1985, NTT was incorporated with all 15.6 million shares held by MOF. By any measure, the privatization of NTT has been an enormous financial success. In the first offering of NTT shares, in November 1986, 1.95 million shares (12.5% of the total) were sold at $7500 per share (at the then prevailing exchange rate of 160 yen/dollar), for total offering revenues of $14.6 billion. That represented 4.25% of central government revenues in the 1987, or about 20% of new public debt.

Over the next eight months, the NTT share price soared to over 3 million yen ($21,000 at the exchange rate of 143). While the share price fell to 2.8 million yen during the October stock market crash, the 8% drop was only half of the Tokyo stock market average, which fell 16%.[35] In the second NTT offering, in November 1987, the government raised an additional $37 billion by selling 1.95 more shares at $19,000 each. This represented 9% of central government revenue in the fiscal year, or 48% of new public debt. After the second offering, the 25% of NTT shares that were publicly held accounted for 21% of total value of the Tokyo stock exchange.

MOF has tentatively scheduled a third offering, of another 12.5%, for November 1988. At the announced offering price of 2.47 million yen, this would raise an additional $36 billion (at 135 yen/dollar), bringing the total revenues from share sales to $88 billion (valued at the currency exchange rate at the time of each offering). The current share price

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[34] The revenues flow through the Japan Key Technology Center, which among others, funds ATR (Advanced Telecommunications Research Institute International), whose research will be organized into four major domains: intelligent communications, telephone (realtime) translation, human auditory and visual mechanisms and light- and radio-wave communications. "ATR: Creating the Communications Future" (promotional brochure): Tokyo, 1986.

[35] Wall Street Journal, November 10, 1987.

of 2.5 million yen is 220 times NTT's earnings, giving NTT a total market valuation of $283 billion, with MOF holding 75% of the shares.

The sale of shares is only one source of government revenues from privatization, however. In the last fiscal year, the government received nearly $.5 billion in dividends, and another $1.5 billion in corporate income taxes. Even as the government continues to realize huge revenues from the sale of additional blocks of NTT stock, it will receive continuing dividend and tax revenues as well. The government's financial interest in NTT must be recognized as a powerful influence in public policies that affect NTT. If NTT prospers, the government will gain a substantial share of the financial benefits. If NTT profits fall, share price, dividends and taxes also fall.

This gives MOF and MITI a direct financial interest in the economic welfare of NTT. MOF holds the remaining government owned shares and receives the revenues from additional offerings. MITI plays an important role in managing the Japan Key Technology Center, which is funded in part by NTT dividends to the government. Of course MPT also has a direct stake in NTT's performance, because, as Ezra Vogel has noted,

> "Since the late nineteenth century, Japanese society has measured the success of bureaucrats concerned with various sectors of the economy by the achievements of their sector. This accountability provided the personal drive for bureaucrats that sustained a tradition of governmental assistance to industry. Beginning at the same time, American society measured the success of comparable bureaucrats not by the achievements of the sector under them but by how well they enforced the rules, and this sustained a tradition of adversarial relations and control over industry. The Japanese bureaucrat responsible for the success of his industry has a powerful incentive to help his team do well against rivals, foreign or domestic..."[36]

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[36] Vogel, 1985, page 166.

These interests, of particular agencies and the government as a whole, perhaps explain the extraordinary difference in regulatory posture toward NTT, compared to the continuing regulation of AT&T and the Regional Bell Holding Companies in the U.S. While Japan has liberalized its telecommunications markets and eliminated all of NTT's monopolies, it has also allowed NTT ample opportunities to expand the scope of its operations and exploit the economies and efficiencies of its integrated communications network.

These policies reflect the contents of the second legislative initiative, the Telecommunications Business Law. The basic provisions of the law, as implemented by administrative ordinances from MPT, include the following elements:

1. there are two classes of telecommunications business: Type I carriers own and operate their own facilities; can offer local exchange and or inter-exchange services, as well as all of the services a Type II carrier can offer (including basic voice, data, facsimile, telex and VAN services); and can lease circuits to Type II carriers for their use in providing VAN services.
2. Type II carriers do not own their own facilities; they lease circuits for use in the provision of VAN services; and they cannot simply resell transmission or message services. Special Type II carriers offer large-scale network services (more than 500 circuits) nationally or internationally; General Type II carriers offered size-limited network services.
3. Type I carriers require prior approval by MPT; tariffs and changes in tariffs, including rates and other terms and conditions, must be authorized by MPT; foreign affiliated companies can own up to one-third of the capital (except NTT, in which foreign ownership is prohibited).

4. Special Type II carriers must register with MPT, General Type II carriers must notify MPT; Special Type II carriers are required to notify MPT of their tariffs, General Type II carriers are not.[37]

The 1985 Telecommunications Business Law and NTT Law give MPT considerable discretion in their implementation and interpretation. There were some - notably MITI - who feared that MPT would act conservatively, to allow as little competition as possible. In fact, MPT has acted rather liberally, readily granting authorizations to Type I carriers and generally promoting competition through its tariff, access and network connection decisions.

MPT's decision to authorize multiple Type I carriers came as a surprise - and something of a disappointment - to many. As shown in Table 1, four terrestrial relay carriers and two satellite carriers have been authorized as Type I telecommunications businesses. One of these, Daini Denden, hoped to be the "second telephone company" (the English translation of its company name). That was not to be, however, as other would be entrants eagerly sought MPT authorization as well, including Japan Telecom and Teleway Japan. Keidanren expended considerable effort to arrange a "consolidation" of these entrants into a single competitor to NTT, on the grounds that one company could offer stronger competition than several. The political backing of the several entrants would not be denied, however, and each now offers Type I services over an area that encompasses a majority of the Japanese population.

The origins of these new common carriers (NCCs) is illustrative of the Japanese style of collective business organization. An initiative of the Public Highway Corporation, Teleway Japan is owned by Toyota, Mitsubishi Corp., Mitsui & Co. and Sumitomo Corp., among others. It has an optical cable network laid along the highways linking Tokyo, Nagoya and Osaka. Japan Telecom was organized by Japan National Railways, but has nearly 300 corporations as its owners. While not contractually required, it is expected that

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[37] MPT, "Open Telecommunications Market of Japan," Revised editions, January 1987 and March 1988.

the corporate owners of each NCC will purchase some share of their telecommunications services from that carrier. Not surprisingly, the NCC's are achieving very rapid growth, even if they have but a small share of the total market.[38]

Their success is in part due to MPT tariff and access policies. MPT has maintained a sizeable difference between NTT and NCC rates (initially 25%, now 20%) to give the NCCs a competitive edge. NTT claims that the NCCs may have a small share of total private circuit business, but are taking a large share of new business.[39] In contrast to the U.S., where access charges constitute a majority of inter-exchange carriers' total costs, there are no access charges in Japan. Instead, the customer pays for a local call to connect to a NCC, a rate far below an equivalent access charge in the U.S.[40] NTT has not been allowed to deaverage its long distance rates nor raise its local rates, although it has expressed some interest in doing so.

There are also a large number of regional Type I carriers, including most of the nine regional electric utilities. Most of these are offering local and short-distance private line services. One interesting possibility is whether some of these regional carriers might one day consolidate with a national relay carrier to form a competing end-to-end network in competition with NTT.

There has been a virtual flood of entry into Type II telecommunications businesses. Table 2 lists the Special Type II carriers, which includes most of the leading computers and communications firms in Japan, including IBM and AT&T. In fact, one of the major

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[38] The three NCC's began providing leased circuits in the fall of 1986, switched services in the fall of 1987. In their first fiscal year ending March 31, 1987, they had total estimated revenues of approximately 400 million yen; in their second fiscal year, revenues were estimated at 17-18 billion yen. Observers are forecasting NCC revenues of 70-80 billion yen in the year ending March 31, 1989. Based on personal interviews with company executives, Tokyo, June 1987 and May 1988.

[39] Based on personal interviews with company executives, Tokyo, May 1988.

[40] The local call applies so long as the NCC has a POI (Point of Interface) in the local calling area; otherwise, the customer would be billed for an NTT short-distance toll call to the NCC's nearest POI. Although Type I carriers are allowed to provide local service, they are using NTT for local access.

VANs, Nippon Information and Communications Corporation, is a joint venture between IBM and NTT.[41]

The respective Tables 3A - 3D list some of the salient features of the General Type II carriers, including their region of operations, their origins (type of business previously engaged in), types of services offered, and business applications of their services. It is apparent from these tables that competition is growing rapidly, with hundreds of information, data processing and related firms entering the newly opened VAN market.

Yet, at the same time, NTT is rapidly expanding into other lines of business, most of which are related, at least indirectly to its core communications business. As shown in Table 4, NTT has created nearly one hundred new subsidiaries since its privatization, including many lines of business that are foreclosed to U.S. RHC's. While not directly engaged in equipment manufacturing (according to a political "understanding," but no legal proscription), NTT has aggressively expanded its equipment research, development and design activities. Several of its products were the highlight of the recent Hanover trade show.[42]

Diversification notwithstanding, NTT is making enormous investments in upgrading its infrastructure, attempting to fully digitize its network in the next five years, with an end-to-end fiber optic network planned for the not-too-distant future. In April 1988, NTT introduced basic ISDN service on a commercial basis; primary ISDN will follow in Spring 1989.[43] Pricing of the new service provides strong economic incentives for adoption, since it provides substantial savings over existing services, especially at long distances.

This, in brief, is the story of Japanese telecommunications. A thriving, expanding, diversifying, integrated NTT; open competition and rapid entry by leading Japanese

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[41] Can one even imagine a major joint venture between AT&T and IBM in the U.S.?

[42] Lannon, 11/87; Purton, 1986; Telephony, 7/87; Telephony 11/87.

[43] Integrated Services Digital Network allows simultaneous use of telephone circuits for voice and data communications, with data transmission at much higher rates than ordinary phone lines.

companies in both telecommunications networks and value-added services. It bears out the points made at the outset about the fundamental differences - intellectual and institutional - between U.S. and Japanese policy regimes.

D. LESSONS FROM JAPAN

There a number of aspects of Japanese telecommunications policy which contrast sharply with those of the U.S. The most important lessons to be learned from the Japanese experience, in my view, are these:

Lesson 1: As a strategic industry vital to national economic and social welfare, telecommunications policy is much too important to be left to courts or regulators. It is the responsibility of the national legislature to develop - or at least adopt - a comprehensive policy for communications and information services. It is one thing for the legislature to have an agency study the need for legislation, or even draft proposed legislation; it is quite another to leave policymaking to one or more agencies. Only full legislative review assures the national consensus necessary for coherent and consistent policy implementation. In short, regulators should act under the direction, not the threat, of legislative action.

Lesson 2: Telecommunications policy should be a national policy. While local involvement in many policy arenas is certainly valuable, telecommunications are national networks, providing interstate services. National policy should take account of regional needs and differences, and might even incorporate limited participation and local decision making in policy implementation, but we cannot afford local policies that are inconsistent or at odds with national interests.[44]

Lesson 3: Telecommunications policy must balance dynamic, long-term goals in technologically advanced networks, services and equipment industries with shorter run consumer protection interests. While Japanese policy continues to be responsive to

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[44] In the case of airline deregulation, Federal law completely pre-empts state regulation of airline service. In railroad deregulation, state regulation must pass strict national standards to prevent states from imposing burdens on interstate commerce.

consumer demands for low basic access rates, it has not imposed undue burdens on long distance or value-added services to achieve that objective. In an earlier era, much of U.S. regulatory policy promoted the development of regulated industries; in fact, with the notable exceptions of railroads, that can be cited as the major success of traditional regulation. In the recent past, however, maintaining the "voter subsidy" has become the linchpin of telephone regulatory policy. In increasingly competitive global information markets, U.S. telecommunications policy should not rise or fall on the size of the monthly residential phone bill.

Lesson 4: Policy should be implemented primarily by a single agency; competing jurisdictions should have incentives to work cooperatively with (or least not antagonistically against) that agency. While MITI and MOF have somewhat competing interests with MPT, and while a jurisdictional war may well have been fought, the new legislation gives very clear signals as to who is in charge on most issues. That provides MPT with the incentive, and the necessary tools, to implement policy in a logically coherent fashion.

Lesson 5: We should not make a forced choice between "monopoly" and "competition." The Japanese approach has so far shown that one need not break up an integrated supplier, or restrict its operations, in order to promote competition. What is required are open access and interconnection, non-discrimination in rates and conditions, and sharing of necessary technical standards and specifications. If done well, these intermediate approaches provide the best chance of exploiting the advantages of scale and integration on the one hand, and market competition on the other.

As we noted at the outset, there are numerous mechanisms for transmitting policies and the effects of policies across national boundaries. Although many doubt that its future will be as bright as its recent past, there can be no denying that Japan is a formidable competitor. By providing a hospitable domestic environment for telecommunications network, services and equipment producers, Japan provides a springboard for success in foreign markets. Likewise, progressive telecommunications and information policies

enhance the ability of users to compete in their respective end markets, whether in automobiles, consumer electronics or financial services. Given the power of markets in transmitting the effects of national policies, we should learn the most important lesson of all: the U.S. can act now or pay later.

TABLE 1: New Type I Telecommunications Carriers

Company Name	Date of Permission	Capital	Services Offered	Start of Operation
Relay Carriers				
Daini Denden Inc.	06/85	Y8 Bil	Long distance phone and leased services	10/86: Leased services 09/87: Long distance phone services
Japan Telecom Co.	06/85	Y9 Bil	Long distance phone and leased services	08/86: Leased services 09/87: Long distance phone services
Teleway Japan Corp.	06/85	Y8,300 M	Long distance phone and leased services	11/86: Leased services 09/87: Long distance phone services
Railways Comm.	03/87	Y3,200 M	Telephone; exclusive satellite	04/87:
Regional Carriers				
Tokyo Telecommunications Network Co., Inc.	08/86	Y10 Bil	Telephone services and leased services	11/86: Leased services
Lake City Cablevision	12/86	Y350 Mil	Leased services	10/87: Leased services
Osaka Media Port Corp.	12/86	Y3 Bil	Leased services	03/87: Leased services
Chubu Telecom Co.	12/87	Y300 Mil	Leased Services	06/88: Leased services, plan
Satellite Carriers				
Japan Comm. Satellite Co.	06/85		Leased services	89: Leased services, plan
Space Comm. Corp.	06/85		Leased services	89: Leased services, plan
International Telecom Carriers				
Internat. Telecom Japan, Inc.	11/87		Internat. phone services and leased services	04/89: Phone service, plan 02/90: Leased services, plan
Internat. Digital Comm., Inc.	11/87		Internat. phone services and leased services	05/89: Phone service, plan 10/89: Leased services, plan

Source: Based on Reports submitted to the Ministry of Post and Telecommunications.

TABLE 2: Special Type II Telecommunications Carriers

Company Name	Location	Services Offered	Service Area	Date of Registration
INTEC Inc.	Toyama	Voice, Video, Data	Nationwide	04/85
Fujitsu Ltd.	Kawasaki	Data	Nationwide	04/85
Japan Information Service, Ltd.(*)	Osaka	Data	Nationwide U.S.	04/85
NEC Corporation (*)	Tokyo	Voice, Video, Data, Integrated Services	Nationwide U.S.	04/85
Hitachi Information Network Ltd. (*)	Tokyo	Data	Nationwide U.S.	04/85
United Net Corp.	Tokyo	Voice, Video, Data, Integrated Services	Nationwide	05/85
Japan ENS Corporation (*)	Tokyo	Data, Voice	Nationwide U.S.	07/85
OKI Network Service	Tokyo	Voice, Video, Data	Nationwide	07/85
Network Info. Service Co., Ltd.(*)	Tokyo	Voice, Video, Data	Nationwide U.S.	11/85
Internetwork Inc.	Tokyo	Data	Nationwide	10/86
Nippon Info. and Comm. Corp.	Tokyo	Voice, Video, Data	Nationwide U.S.	07/87
Japan Global VAN Inc.(*)	Tokyo	Video, Data	Nationwide U.S.	09/87
Nomura Computer Systems Co. (*)	Tokyo	Data	Nationwide U.S.	10/87

TABLE 2: Special Type II Telecommunications Carriers, cont.

Company Name	Location	Services Offered	Service Area	Date of Registration
Mitsui Knowledge Industry Co.(*)	Tokyo	Data	Nationwide U.S.	10/87
IBM Japan(*)	Tokyo	Data	Nationwide U.S.	10/87
Nihon Keizai Shimbun Inc.(*)	Tokyo	Video, Data	Nationwide U.S.	10/87
Toyo Information Systems Co.	Osaka	Data	Nationwide	11/87

(*) indicates registration as an international VAN operator.

Source: Based on Reports submitted to the Ministry of Post and Telecommunications.

TABLE 3: CHARACTERISTICS OF NEW CARRIERS

3A: General Type II Telecom Carriers by Region Where Their Main Office Located

Region	Number of Companies	Region	Number of Companies
Hokkaido	29	Kinki (Osaka)	66 (54)
Tohoku	21	Chugoku	26
Kanto (Tokyo)	197 (168)	Shikoku	12
Shinetsu	17	Kyushu	28
Tokai	38	Okinawa	3
Hokuriku	15		
		TOTAL	**452**

3B: General Type II Telecommunications Carriers by Type of Business Previously Engaged In

Industries	Number of Companies
Information communication processing, vendors who have been offering on-line calculation services on a contract basis	226
Distribution companies, such as wholesaling of warehousing	39
Transportation operations, door-to-door cargo delivery	10
Publishing-advertising	12
Manufacturing and/or sale of electric equipment; software development	40
General trading houses	7
Other industries	118
TOTAL	**452**

3C: Types of Telecommunications Services Provided by Type II Carriers

Service	Number of Companies
Voice transmission	112
Video transmission	71
Data transmission	342
Integrated services	60
Total	585

3D: Business Applications of General Type II Telecom Carriers

Application	Number of Companies
Transmission and exchange of order data between retailers and wholesalers (distribution)	about 183
Transmission and exchange of shipping and delivery information on door-to-door cargo. (transportation)	about 19
Transmission and exchange of sales data between credit companies and member stores; information on settlement of accounts for funds and credit card companies (finance)	about 27
Voice mail service	about 71
Electric mail and bulletin board services between personal computers	about 68
Pure resale of leased lines	43
Other applications	about 69

Source: Based on Reports submitted to the Ministry of Post and Telecommunications.

TABLE 4: NTT's Newly-Established Affiliated Companies

Company(Location)	Date of Establishment	Capitalization (million Y)	NTT's Share (%)	Operations
NTT Leasing Co.	4/85	250	40	Leasing of terminal equip.
Sogo Tsushin Engineering Co.	4/85	20	50	Consulting on telecomm.
NTT System Technologies Co.	5/85	100	100	Designing data comm. systems
INS Engineering Corp.	5/85	499	34	Design and sale of DIPS systems
Infocom Research, Inc.	6/85	160	51	Research, analysis & survey of telecomm.
NTT Software Corp.	7/85	200	100	Basic software development
Nippon Telematique, Inc.	8/85	300	50	Sales of local CAPTAIN systems
NTT PC Communications Inc.	9/85	1400	90	Developing PC communications networks
NTT Chugoku Media Supply Co.	10/85	25	35	Input of CAPTAIN information
NTT Syscom Corp.	10/85	20	51	Sales of PC application systems
Kansai Teleca Co.	10/85	30	50	Encoding & advertising phone cards
NTT International Corp.	10/85	3000	53	Overseas engineering, sales, install., operations, and consultation
NTT Legato Co.	10/85	50	100	Telemarketing
Nippon Computer Security Corp.	10/85	350	45	Computer security
NTT Travel Service Co.	11/85	40	25	Tourist services
Hokuriku CAPTAIN Service Co.	12/85	30	33	Input of CAPTAIN information
Nippon Info & Comm Corp.	12/85	6000	50	Design & operate VAN systems
NTT Ad Co.	12/85	50	75	Advertising & publishing
NTT Tokyo Soft Supply Co.	12/85	50	100	Sales of PC application systems
Le Parc Co.	12/85	20	90	Parking
NTT Rental Engineering Co.	12/85	380	48	Construction equipment rental
Japan Utility Subway Co.	01/86	1000	40	Supervising common-use tunnels
NTT Telemarketing Co.	01/86	50	45	Telemarketing

TABLE 4: NTT's Newly-Established Affiliated Companies, cont.

Company(Location)	Date of Establishment	Capitalization (million Y)	NTT's Share (%)	Operations
NTT Urban Development Co.	01/86	3043	100	Real estate business
Dynamic Admedia	02/86	20	85	Advertizing
NTT System Service	03/86	70	90	System planning & maintenance
Adv Telecom Res Inst Inter	03/86	5349	60	Basic telecom tech re & develop
NTT Town Net Service Co.	04/86	30	100	Telemarketing
NTT Chugoku Telecom Service	04/86	30	67	Telemarketing
Nippon Directory Develop Co.	04/86	300	50	Consultation of phone directory
Internetwork Inc.	05/86	4000	25	VAN services
NTT Card System Co.	05/86	100	45	Credit card services
NTT Information Develop	05/86	480	52	Provide business info
NTT Telesupport Co.	05/86	50	51	Telemarketing
Japan Intelligent Bldg Syst	05/86	150	20	Plan, consult & maint intell bldgs
NTT Finance (U.K.)	06/86	US$10M	100	Overseas financing
NTT R Co.	06/86	60	35	Develop/sell automatic meter readers and alarm systems for LP gas
NTT Finance (Holland)	07/86	PGL0.3M	100	Overseas financing
NTT Pastel Co.	07/86	20	100	Telemarketing
NTT Telephone Assist Co.	08/86	30	75	Telemarketing
Nippon Card Engineering Co.	08/86	400	20	Prepaid card business
NTT Intelligent Bldg Service Co.	09/86	30	52	Maintain intelligent bldgs and telecomm facilities
Info Space Service Co.	10/86	50	45	Storage of magnetic records
NTT Green Media Co.	10/86	50	56	Sales of comm & info systems

TABLE 4: NTT's Newly-Established Affiliated Companies, cont.

Company(Location)	Date of Establishment	Capitalization (million Y)	NTT's Share (%)	Operations
NTT Tour Media Co.	11/86	300	20	Provide travel info services shared by travel agents
NTT Hokuriku Telemac Co.	11/86	30	77	Telemarketing
NTT Hokkaido Telemart Co.	11/86	30	70	Telemarketing
NTT Estate Co.	12/86	2137	100	Real estate business
Nagoya Information Center Co.	12/86	200	20	Operation of local CAPTAIN center
Healthynet Hiroshima Co.	12/86	90	100	Sports club
NTT Telemate Co.	01/87	50	75	Telemarketing
NTT Kyushu Tracom Co.	02/87	30	55	Telemarketing
NTT Kyushu Telecontrol Co.	02/87	400	34	Telecontrol
NTT Emission, Co.	02/87	30	65	Provide info services
NTT Auto Leasing Co.	02/87	300	47	Lease cars & trucks
Nippon Facility Service Co.	02/87	50	35	Maintain intel bldg/telecom facil
Data Security Service Co.	03/87	70	42	Store magnetic tapes
NTT Constr Research Center	04/87	50	52	Transfer constr tech & consultation
Nippon Ticket VAN Service Co.	04/87	100	20	Operate ticket VAN services
NTT FA-Net Systems Corp.	04/87	100	40	Factory automation engineering
Hello Sports Plaza (Kansai)	04/87	95	46	Health promotion activities
Hello Sports Plaza (Tokyo)	04/87	70	41	Health promotion activities
NTT Niigata Communication Co.	04/87	30	53	Telemarketing
NTT Tohoku Telema Co.	05/87	50	64	Telemarketing
Inter Integ Data Base Corp.	05/87	100	26	Provide international datbase service

Source: Annual Reports of NTT and Business Plans submitted to the Ministry of Post and Telecommunications.

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